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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/913,992	PELZ ET AL.	
	Examiner	Art Unit	
	Jeffrey R. West	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11,12,14,16-23 and 26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11,12,14,16-23 and 26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 11, 12, 14, and 16-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 11 and 19 are rejected as lacking enablement because they each require "performing an error diagnosis of software running on the other components" and "allowing a remote diagnosis of the other components of the distributed system to be

carried out, wherein the remote diagnosis includes testing at least one of the other components."

The specification best describes these features in the following passages:

First on page 5, lines 15-17:

> In addition, service element 2 allows a service provider to carry out a remote diagnosis of the individual components, using communication means 4. This service provider can then test the individual components directly, using communication means 4 and service element 2.

This section, while mentioning a service provider carrying out remote diagnosis and testing, does not enable one having ordinary skill in the art to use both the remote testing and the remote diagnosis. Specifically, by not mentioning any steps to be carried out regarding the test, one having ordinary skill in the art would not understand, and therefore would not be able to perform, the manner for testing. Additionally, this section makes it unclear to one having ordinary skill in the art how the remote diagnosis and testing differ and raises the issue as to whether or not the remote diagnosis and testing are indeed different from each other. The claims, however, by requiring "allowing a remote diagnosis...wherein the remote diagnosis includes testing", indicate that diagnosing and testing are different from each other. The specification then further elaborates the operation of the service provider on page 5, lines 16-25 by only discussing the remote diagnosis, thereby again raising the question as to what constitutes the testing operation and how the testing differs from the remote diagnosis, specifically:

> Service element 2 also contacts the service provider, using communication means 4, when service element 2 can no longer eliminate an error itself. If the component in question can also no longer be repaired using the remote

> diagnosis of the service provider, then the service provider contacts the user of the distributed system, using communication means 4, in order to request that he or she visit a repair shop. Display 7 and/or communication means 4 is used for this. As an alternative, the audio playback of the car radio, which includes DAB receiver 6, can be used.

The specification then discloses, on page 7, lines 10-19, performing a functional test, but refers to the testing as being performed by the local service element, and not by a remote means, thereby making it unclear to one having ordinary skill in the art whether this testing is considered to be the remote testing, specifically:

> A method known for this is the checksum method. CRC (cyclical redundancy check) sums are calculated using code segments of the software, and are compared. In this manner, an incorrect code can be identified, and, if the remaining software of the service element has the independent capability, then the software can be repaired, e.g. by loading new software parts, so-called patches. In the case of serious software errors of service element 2, an emergency operation of service element 2 can ensure the correction. A functional test of the bus communication can be carried out using predefined signals, which are transmitted on the bus, and to which a certain response from the connected components is expected, this response being known to service element 2. This ensures that an error message of a subsystem is not lost due to a bus interruption.

Finally, the specification, on page 7, line 28 to page 8, line 2 discusses testing with respect to the remote service provider, specifically:

> Service element 2 questions a service provider in certain time intervals, e.g. once a month, if new software versions are available for the individual components of the distributed system. If this is the case, the service element requests such a new software version, and then loads it using communication means 4. The new software version is tested for errors, using test vectors, and is then configured for the corresponding components. Such an upgrade is then the specific software, or also the manufacturer of the components. It can also be a service company, which takes over the distribution of the software and the maintenance tasks.

However, this section does not remedy the lack of enablement of the claimed limitations because is discusses the testing as testing the new software version for errors. The claimed limitations in question require "performing an error diagnosis of software running on the other components" and "allowing a remote diagnosis of the other components of the distributed system to be carried out, wherein the remote diagnosis includes testing at least one of the other components", and therefore it is unclear to one having ordinary skill in the art whether the discussed testing of the new software version for errors is with reference to the claimed "performing an error diagnosis of software running on the other components" or "remote…diagnosis of the other components".

For these reasons, the Examiner asserts that one having ordinary skill in the art would not be enabled to make/use the claimed "performing an error diagnosis of software running on the other components" and "allowing a remote diagnosis of the other components of the distributed system to be carried out, wherein the remote diagnosis includes testing at least one of the other components" as required by 35 U.S.C. 112, first paragraph.

Claims 12, 14, 16-18 and 20-23 are rejected under 35 U.S.C. 112, first paragraph, because they incorporate the lack of enablement present in their respective parent claims.

4. Claim 26 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 26 is rejected as failing to comply with the written description requirement because, as amended/presented, it requires, "a processing device disposed in the motor vehicle and adapted to perform operations including the operations of: automatically, and at predefined intervals, performing an error diagnosis of software running on the other components; for each of a first subset of errors diagnosed in the error diagnosis step, repair the error; and for each of a second subset of errors diagnosed in the error diagnosing step, contact a provider and allow the provider to responsively remotely repair the error."

The specification, however, on page 5, lines 15-25 recites:

> In addition, service element 2 allows a service provider to carry out a remote diagnosis of the individual components, using communication means 4. This service provider can then test the individual components directly, using communication means 4 and service element 2.
> Service element 2 also contacts the service provider, using communication means 4, when service element 2 can no longer eliminate an error itself. If the component in question can also no longer be repaired using the remote diagnosis of the service provider, then the service provider contacts the user of the distributed system, using communication means 4, in order to request that he or she visit a repair shop. Display 7 and/or communication means 4 is used for this. As an alternative, the audio playback of the car radio, which includes DAB receiver 6, can be used.

The Examiner asserts that this section does suggest that the service element (i.e. processing device disposed in the motor vehicle) can both repair errors and, if an error is obtained that cannot be repaired, contact a provider and allow the

provider to responsively remotely repair the error by disclosing "[s]ervice element 2 also contacts the service provider, using communication means 4, when service element 2 can no longer eliminate an error itself".

This section, however, also explicitly indicates that the "service element 2 allows a service provider to carry out a remote diagnosis of the individual components, using communication means 4" and "[t]his service provider can then test the individual components directly, using communication means 4 and service element 2". This section, therefore, indicates that it is the service provider that carries out a remote diagnosis and does not support a local error diagnosis by the on-vehicle processing device nor that the diagnosis is an error diagnosis of software, as required by claim 26.

With respect to error diagnosis of software, the specification indicates on page 7, line 6 to page 8, line 2:

> In regular intervals, service element 2 checks the components, which are connected to bus 1, and to which service element 2 also belongs. Therefore, a self-diagnosis is also carried out. This self-diagnosis, which is performed by software, is carried out using a suitable method.
>
> A method known for this is the checksum method. CRC (cyclical redundancy check) sums are calculated using code segments of the software, and are compared. In this manner, an incorrect code can be identified, and, if the remaining software of the service element has the independent capability, then the software can be repaired, e.g. by loading new software parts, so-called patches. In the case of serious software errors of service element 2, an emergency operation of service element 2 can ensure the correction. A functional test of the bus communication can be carried out using predefined signals, which are transmitted on the bus, and to which a certain response from the connected components is expected, this response being known to service element 2. This ensures that an error message of a subsystem is not lost due to a bus interruption.
>
> If service element 2 detects an error, then service element 2 contacts a service provider using communication means 4, in order to load corrected

> software and consequently configure the specific components of the distributed system. But if there is a hardware error, then service element 2 initially sends a message to a service provider, who then contacts the user, so that the components in question are replaced or repaired. This error diagnosis is conducted in certain time intervals, e.g. once a day or every week or once a month.
>
> Service element 2 questions a service provider in certain time intervals, e.g. once a month, if new soft-ware versions are available for the individual components of the distributed system. If this is the case, the service element requests such a new software version, and then loads it using communication means 4. The new software version is tested for errors, using test vectors, and is then configured for the corresponding components. Such an upgrade is then automatically carried out by the visitor alone. A service provider can be the manufacturer of the specific software, or also the manufacturer of the components. It can also be a service company, which takes over the distribution of the software and the maintenance tasks.

The Examiner asserts that this section, does support the claimed limitations of "a processing device disposed in the motor vehicle and adapted to perform operations including the operations of: automatically, and at predefined intervals, performing an error diagnosis of software running on the other components" by providing a service element that periodically performs a CRC.

With respect to error correction (i.e. repair), this section, however, indicates that "the software can be repaired, e.g. by loading new software parts, so-called patches" wherein such repair is disclosed as "[i]f service element 2 detects an error, then service element 2 contacts a service provider using communication means 4, in order to load corrected software and consequently configure the specific components of the distributed system" or "if there is a hardware error, then service element 2 initially sends a message to a service provider, who then contacts the user, so that the components in question are replaced or repaired." This section,

therefore, indicates that if a first subset of errors is diagnosed, the service element contacts a service provider to repair the error and if a second subset of errors is diagnosed, the service provider is also contacted, but in this instance a user is further contacted so that the components in question can be replaced or repaired.

This does not support a limitation of "a processing device disposed in the motor vehicle and adapted to perform operations including the operations of...for each of a first subset of errors diagnosed in the error diagnosis step, repair the error; and for each of a second subset of errors diagnosed in the error diagnosing step, contact a provider and allow the provider to responsively remotely repair the error" because for the first subset of errors, it is still the service provider that is remotely contacted to upload corrected software to repair the error and, for the second subset of errors, a user is contacted to manually repair the error locally rather than performing such repair by the provider remotely.

Additionally, this second subset of errors corresponds to a hardware error and, therefore, does not properly support determining a second subset of errors based on "performing an error diagnosis of software running on the other components".

For these reasons, the Examiner asserts that the specification does not adequately support "a processing device disposed in the motor vehicle and adapted to perform operations including the operations of: automatically, and at predefined intervals, performing an error diagnosis of software running on the other components; for each of a first subset of errors diagnosed in the error diagnosis step, repair the error; and for each of a second subset of errors diagnosed in the

error diagnosing step, contact a provider and allow the provider to responsively remotely repair the error" and, as such, claim 26 contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 11, 12, 14, 17-20 and 23, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,370,449 to Razavi et al. in view of U.S. Patent No. 6,512,968 to de Bellefeuille et al.

With respect to claim 11, Razavi discloses a service element that belongs to a distributed system in a motor vehicle as a component (column 6, lines 10-18), the distributed system further including other components that are independent of one another (column 3, lines 30-33) and interconnected by a bus (column 4, lines 40-47), the service element comprising a processing device disposed in the motor vehicle (column 8, lines 21-49) and adapted to perform operations including the operations of configuring the other components (column 7, lines 40-46, column 8, lines 21-29, and column 11, lines 14-20), maintaining the other components (column 13, lines

53-61 and column 15, lines 6-13), allowing a remote diagnosis of the other components of the distributed system to be carried out (column 15, lines 3-10), and performing an emergency function (column 1, lines 41-46 and column 7, lines 54-63).

With respect to claim 12, Razavi discloses that the processing device is further adapted to perform the operations of detecting a new component and for integrating the new component into the distributed system (column 9, lines 45-54) and operating a display device to represent information about a configuration (column 10, line 46 to column 11, line 12).

With respect to claim 14, Razavi discloses that at least one of the maintaining operation and the correcting operation includes communicating with a communication element for loading new software for the other components (column 13, lines 61-64).

With respect to claim 17, Razavi discloses that the processing device is further adapted to perform the operations operating a display to transfer information about the distributed system to a user of the distributed system (column 11, lines 14-20)

With respect to claim 19, Razavi discloses a distributed system, comprising components connected by a bus (column 4, lines 40-47) the components being independent of each other and being disposed in a motor vehicle (column 3, lines 30-33), one of the components being a service element (column 6, lines 10-18) that includes a processing device adapted to perform operations (column 8, lines 21-49), the operations including configuring the other components (column 7, lines 40-46,

column 8, lines 21-29, and column 11, lines 14-20), maintaining the other components (column 13, lines 53-61 and column 15, lines 6-13) allowing remote diagnosis of the other components of the distributed system to be carried out (column 15, lines 3-10), and performing an emergency function (column 1, lines 41-46 and column 7, lines 54-63).

With respect to claim 20, Razavi discloses that at least one of the other components includes a communication element (column 4, lines 54-60 and column 5, line 51).

With respect to claim 23, Razavi discloses that the bus includes one of an electrical wiring system, an optical wiring system, and a radio based system (column 3, lines 53-57).

As noted above, the invention of Razavi teaches many of the features of the claimed invention and while the invention of Razavi does teach uploading new software and performing maintenance and updates of existing software of the other components when necessary, Razavi does not explicitly describe the manner in performing maintenance, specifically by performing an error diagnosis to check the software in accordance with a predetermined value.

De Bellefeuille teaches a computerized automotive service system comprising means for maintaining installed software, as part of an installation/uninstallation feature (column 10, lines 11-13), including an arrangement for performing integrity testing and error diagnosis of software by checking the software in accordance with

a predetermined value in order to carry out the corrective maintenance (column 11, lines 12-25).

It would have been obvious to one having ordinary skill in the art to modify the invention of Razavi to explicitly include performing an error diagnosis to check the software in accordance with a predetermined value, as taught by de Bellefeuille, because the combination would have provided a corresponding method for performing the maintenance of Razavi as part of the software updates that would have improved the operation of Razavi by periodically checking the integrity of the software of the other components to prevent incorrect operation due to software errors (column 11, lines 12-25).

7. Claim 16, as may best be understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Razavi et al. in view de Bellefeuille and further in view of U.S. Patent No. 6,330,499 to Chou et al.

As noted above, the invention of Razavi and de Bellefeuille teaches many of the features of the claimed invention and while the invention of Razavi and de Bellefeuille does teach a communication element for loading new software for the other components as well as performing an error diagnosis of the software, the combination does not explicitly include communicating with a communications element for, in the case of a serious functional error, contacting a service provider.

Chou teaches a system and method for vehicle diagnostics and health monitoring including an in-vehicle computing system (column 2, lines 55-63)

connected to a plurality of elements on a bus (column 3, lines 33-37 and column 6, lines 55-56) and an arrangement for allowing a remote diagnosis of the system (column 3, lines 15-31) and a communications element for, in the case of a serious functional error, contacting a service provider (column 5, lines 16-24 and column 7, lines 4-26). Chou also teaches coupling the processor through a communicating transceiver for communicating over a radio channel to further devices such as a notebook computer (column 3, lines 47-53).

It would have been obvious to one having ordinary skill in the art to modify the invention of Razavi and de Bellefeuille to explicitly include communicating with a communications element for, in the case of a serious functional error, contacting a service provider, as taught by Chou, because, as suggested by Chou, the combination would have aided the user of the system by providing trouble-shooting, diagnosis, tracking, and recommendations, as well as prevented serious consequences (column 1, lines 18-30) and provided emergency responses to an emergency condition, such as the condition signaled by the emergency arrangement of Razavi and de Bellefeuille (column 7, lines 22-26).

8. Claim 21, as may best be understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Razavi et al. in view de Bellefeuille and further in view of U.S. Patent No. 5,465,207 to Boatwright et al.

As noted above, the invention of Razavi and de Bellefeuille teaches many of the features of the claimed invention and while the invention of Razavi and de

Bellefeuille does teach a communication element as a transceiver station (i.e. modem) (Razavi; column 11, lines 38-42), the combination does not explicitly indicate that the transceiver station communicates over a radio channel.

Boatwright teaches a vehicle data system including a plurality of system components connected to a bus (Figure 4) wherein one of the components is a communication element comprising a transceiver station (i.e. modem) communicating over a radio channel (column 6, lines 62-66).

It would have been obvious to one having ordinary skill in the art to modify the invention of Razavi and de Bellefeuille to explicitly indicate that the transceiver station communicate over a radio channel, as taught by Boatwright, because Boatwright suggests that the combination would have provided a communication protocol for the modem of Razavi and de Bellefeuille that is a common manner of communication for modems (column 6, lines 62-66).

9. Claim 22, as may best be understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Razavi et al. in view de Bellefeuille and further in view of U.S. Patent No. 5,964,813 to Ishii et al.

As noted above, the invention of Razavi and de Bellefeuille teaches many of the features of the claimed invention and while the invention of Razavi and de Bellefeuille does teach performing an error diagnosis of the software any time that it is desired (de Bellefeuille; column 11, lines 20-25), the combination does not explicitly indicate that the error diagnosis is performed at a predefined time interval.

Ishii teaches a vehicle diagnostic data storing system comprising means for performing error diagnosis wherein the diagnosis is performed at a predetermined time interval (column 4, lines 48-61).

It would have been obvious to one having ordinary skill in the art to modify the invention of Razavi and de Bellefeuille to explicitly indicate that the error diagnosis is performed at a predefined time interval, as taught by Ishii, because, as suggested by Ishii, the combination would have improved the system of Razavi and de Bellefeuille by providing automatic and periodic error diagnosis to reduce the burden of the user having to initiate the diagnosis while reducing the chance of system error through diagnostics occurring more often (column 4, lines 48-61).

10. Claim 26, as may best be understood, is rejected under 35 U.S.C. 103(a) as being unpatentable over Razavi et al. in view de Bellefeuille and Chou et al. and further in view of U.S. Patent No. 5,964,813 to Ishii et al.

As noted above, the invention of Razavi, de Bellefeuille, and Chou teaches many of the features of the claimed invention and while the invention of Razavi, de Bellefeuille, and Chou does teach performing an error diagnosis of the software any time that it is desired (de Bellefeuille; column 11, lines 20-25), the combination does not explicitly indicate that the error diagnosis is performed at a predefined time interval.

Ishii teaches a vehicle diagnostic data storing system comprising means for performing error diagnosis wherein the diagnosis is performed at a predetermined time interval (column 4, lines 48-61).

It would have been obvious to one having ordinary skill in the art to modify the invention of Razavi, de Bellefeuille, and Chou to explicitly indicate that the error diagnosis is performed at a predefined time interval, as taught by Ishii, because, as suggested by Ishii, the combination would have improved the system of Razavi, de Bellefeuille, and Chou by providing automatic and periodic error diagnosis to reduce the burden of the user having to initiate the diagnosis while reducing the chance of system error through diagnostics occurring more often (column 4, lines 48-61).

11. Claims 11, 12, 14, 16-21, and 23, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,185,491 to Gray et al. in view of U.S. Patent No. 6,246,935 to Buckley and further in view of U.S. Patent No. 6,330,499 to Chou et al.

With respect to claim 11, Gray discloses a service element that belongs to a distributed system in a motor vehicle as a component (column 3, lines 27-32), the distributed system further including other components that are independent of one another and interconnected by a bus (column 3, lines 27-32 and Figure 2), the service element comprising a processing device disposed in the motor vehicle and adapted to perform operations (column 3, line 66 to column 4, line 8) including the operations of configuring the other components (column 3, lines 36-52 and column

5, line 55 to column 6, line 1), upgrading/maintaining the other components (column 4, line 65 to column 5, line 8), and performing an emergency function (column 3, lines 52-54).

With respect to claim 12, Gray discloses that the processing device is further adapted to perform the operations of detecting a new component and for integrating the new component into the distributed system (column 6, lines 28-53) as well as operating a display device to represent information about a configuration (column 5, lines 60-64 and Figure 9).

With respect to claim 14, Gray discloses that at least one of the maintaining and the correcting operation includes communicating with a communication element for loading new software interfaces for the other components (column 4, line 65 to column 5, line 6 and column 6, lines 34-40 and 62-64).

With respect to claim 17, Gray discloses that the processing device is further adapted to perform the operations operating a display to transfer information about the distributed system to a user of the distributed system (column 5, lines 32-64).

With respect to claim 19, Gray discloses a distributed system, comprising a bus and components connected by the bus, the components being independent of each other and being disposed in a motor vehicle (column 3, lines 27-32 and Figure 2), one of the components being a service element (column 3, lines 27-32) that includes a processing device to perform operations (column 3, line 66 to column 4, line 8) the operations including configuring the other components (column 3, lines 36-52 and column 5, line 55 to column 6, line 1), upgrading/maintaining the other components

(column 4, line 65 to column 5, line 8), and performing an emergency function (column 3, lines 52-54).

With respect to claim 20, Gray discloses that at least one of the other components includes a communication element (column 4, line 65 to column 5, line 6 and column 6, lines 34-40 and 62-64).

With respect to claim 23, Gray discloses that the bus includes one of an electrical wiring system, and optical wiring system, and a radio based system (column 2, lines 55-61, column 3, lines 27-32 and Figure 2).

As noted above, the invention of Gray teaches all of the features of the claimed invention except for including performing an error diagnosis of software running on the components, in accordance with a predetermined value, and, in case of an error, correcting the software.

Buckley teaches a vehicle instrument panel computer interface and display including a central control node that communicates to a plurality of other components (column 2, lines 57-62 and column 3, lines 29-51) and performs an error diagnosis of software running on the plurality of components (column 8, lines 46-63). Buckley also teaches determining the occurrence of an error in the software using a cyclic redundancy check with a checksum value (column 7, lines 38-52 and column 9, lines 28-38) (see also FOLDOC Free On-Line Dictionary of Computing, “cyclic redundancy check”), memory check (column 9, lines 38-55) and newly downloaded software check (column 10, lines 27-33), and, upon the occurrence of an error, correcting the software to maintain correct operation (column 9, lines 36-37

and 41-42 and column 10, lines 27-33) through the updating/upgrading the components of the system (column 10, lines 27-43).

It would have been obvious to one having ordinary skill in the art to modify the invention of Gray to include performing an error diagnosis of software running on the components, in accordance with a predetermined value, and, in case of an error, correcting the software, as taught by Buckley, because the combination would have provided a further method for determining when new updates are required, such as the updates/upgrades disclosed by Gray, and, as suggested by Buckley, provided a method for determining whether the software of the devices are updated, complete, and correct thereby insuring correct operation of the distributed system (column 8, lines 46-65, column 9, lines 28-30 and column 10, lines 30-33).

As noted above, the invention of Gray and Buckley teaches many of the features of the claimed invention and while the invention of Gray and Buckley does teach including a communication element for loading new software interfaces for the plurality of components, the combination does not specify that the communication element includes a transceiver station communicating over a radio channel or including an arrangement for allowing a remote diagnosis of the plurality of components of the distributed system and a communications element for, in the case of a serious functional error, contacting a service provider.

Chou teaches a system and method for vehicle diagnostics and health monitoring including an in-vehicle computing system (column 2, lines 55-63) connected to a plurality of elements on a bus (column 3, lines 33-37 and column 6,

lines 55-56) and an arrangement for allowing a remote testing and diagnosis of the system (column 3, lines 15-31 and column 5, lines 1-15) and a communications element for, in the case of a serious functional error, contacting a service provider (column 5, lines 16-24 and column 7, lines 4-26). Chou also teaches coupling the processor through a communicating transceiver for communicating over a radio channel to further devices such as a notebook computer (column 3, lines 47-53).

It would have been obvious to one having ordinary skill in the art to modify the invention of Gray and Buckley to specify that the communication element includes a transceiver station communicating over a radio channel, as taught by Chou, because Chou suggests that RF communication is one of a plurality of common communication means for interfacing to a plurality of devices thereby providing the user with desired method to communicate with the other devices. It also would have been obvious to include an arrangement for allowing a remote diagnosis of the plurality of components of the distributed system and a communications element for, in the case of a serious functional error, contacting a service provider, as taught by Chou, because the combination would have provided a method for adhering to space constraints of the system while still providing detailed monitoring and diagnostic functions to insure correct system operation and, as suggested by Chou, aided the user of the system by providing trouble-shooting, diagnosis, tracking, and recommendations, as well as prevented serious consequences (column 1, lines 18-30) and provided emergency responses to an emergency condition, such as the condition indicated by the emergency arrangement of Gray (column 7, lines 22-26).

12. Claims 22 and 26, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray in view of Buckley and Chou and further in view of U.S. Patent No. 4,866,713 to Worger et al.

As noted above, the invention of Gray, Buckley and Chou teaches many of the features of the claimed invention including determining the occurrence of an error in the software using a cyclic redundancy check with a checksum value (Buckley; column 7, lines 38-52 and column 9, lines 28-38), however, the combination does not specify that this error diagnosis is performed at a predefined time interval.

Worger teaches an operational function checking method and device for microprocessors comprising performing a cyclic redundancy check at predefined time intervals (i.e. periodically) (column 4, lines 24-29).

It would have been obvious to one having ordinary skill in the art to modify the invention of Gray, Buckley and Chou to specify that the error diagnosis is performed at a predefined time interval, as taught by Worger, because the combination would have provided a method for determining proper operation periodically over operation of the device to insure accurate operation is being performed and, as suggested by Worger, the combination would have complied with operation of the system in carrying out the testing method (column 4, lines 24-29).

Response to Arguments

13. Applicant's arguments with respect to claims 11, 12, 14, 16-23, and 26 have been considered but are moot in view of the new ground(s) of rejection.

The following arguments, however, are noted:

Applicant argues:

> Claims 11 and 19, recite the feature of, inter alia, a service element, disposed within a motor vehicle, which performs operations including "performing an error diagnosis of software running **on the other components**." The recited "components" of claims 11 and 19 are independent of one another and interconnected via a bus. As regards the operation of "performing an error diagnosis ...," the Examiner acknowledges that Razavi does not disclose this feature, and instead relies on de Bellefuille.
>
> De Bellefuille describes a computerized automotive servicing device, as may be hooked up (i.e., externally) to the electrical system of a motor vehicle. (e.g. col. 8, lines 10- 21 describing the invention as used in a wheel alignment device). The automotive servicing device is not disposed within the motor vehicle, as recited in claim 11 and 19, but rather is manually connected to the vehicle during a servicing operation. Additionally, the "error diagnosis" allegedly described by de Bellefuille at col. 11, lines 12-25 is not an error diagnosis of "the other components," i.e., other components which are interconnected via a bus within the motor vehicle, as recited in claims 11 and 19. Instead, the file integrity check tool apparently checks files that appear to be stored on the same device as the file integrity check tool.

The Examiner first asserts that, with respect to the limitations of a service element disposed within a motor vehicle and interconnected with other components via a bus, the invention of Razavi discloses a service element that belongs to a distributed system in a motor vehicle as a component (column 6, lines 10-18), the distributed system further including other components that are independent of one another (column 3, lines 30-33) and interconnected by a bus (column 4, lines 40-47), the service element comprising a processing device disposed in the motor vehicle (column 8, lines 21-49).

The Examiner also asserts that the Office Action pointed out that, as the invention of Razavi teaches uploading new software and performing maintenance and updates of existing software of the other components when necessary, the invention of deBellefuille is relied upon for explicitly describing the manner for performing maintenance, specifically by performing an error diagnosis to check the software in accordance with a predetermined value.

Similarly, while Applicant argues that "the 'error diagnosis' allegedly described by de Bellefuille at col. 11, lines 12-25 is not an error diagnosis of 'the other components'", the Examiner again asserts that since Razavi already discloses a service element that belongs to a distributed system in a motor vehicle as a component (column 6, lines 10-18), the distributed system further including other components that are independent of one another (column 3, lines 30-33) and interconnected by a bus (column 4, lines 40-47), the service element comprising a processing device disposed in the motor vehicle (column 8, lines 21-49) adapted to perform operations including maintaining the other components (column 13, lines 53-61 and column 15, lines 6-13), the invention of de Bellefeuille is not relied upon to teach a service operation performing error diagnosis of "other components" but instead to modify the maintenance of other components by the service element disclosed in Razavi to explicitly describe the manner for performing maintenance, specifically by performing an error diagnosis to check the software in accordance with a predetermined value.

Further, the Examiner maintains that it would have been obvious to one having ordinary skill in the art to modify the invention of Razavi to explicitly include performing an error diagnosis to check the software in accordance with a predetermined value, as taught by de Bellefeuille, because the combination would have provided a corresponding method for performing the maintenance of Razavi as part of the software updates that would have improved the operation of Razavi by periodically checking the integrity of the software of the other components to prevent incorrect operation due to software errors (column 11, lines 12-25).

Applicant argues:

In the "Response to Arguments" section, the Office Action asserts that Razavi discloses a service element that maintains other components and de Bellefuille discloses that maintenance may include performing an error diagnosis. Specifically, the Office Action asserts that col. 13, lines 53-61 and col. 15, lines 6 to 13 of Razavi discloses a service element that maintains other components. The former cited section merely indicates that the configuration of components as network devices simplifies re-configuration of a vehicle, since software may be quickly and easily retrieved from external sources which can be accessed through communication devices. The cited section provides no information regarding the initiation of such retrieval, and makes no mention whatsoever of a device of the system performing any kind of maintenance. The latter section merely indicates that the in- car network of a car, when the car pulls into a service station, can form a single network with the service station via which the service station may perform necessary services. The cited section does not disclose any component of the in-car network, for example, that performs maintenance upon any other component of the in-car network. Indeed, any review of the Razavi reference makes plain that it does not disclose or suggest the features of a service element that performs maintenance of any kind of other components of the distributed system to which the service element belongs, as provided for in the context of claims 11 and 19.

In this regard, it is noted that claims 11 and 19 provides a novel step-wise approach to component maintenance, by providing a service element in a distributed system to handle initial maintenance and testing of other components

of the distributed system and that also provides further remote diagnosis, e.g., where the service element is unable to perform the diagnosis.

The Examiner disagrees with Applicant's indication that Razavi "provides no information regarding the initiation of such retrieval, and makes no mention whatsoever of a device of the system performing any kind of maintenance". Instead, the Examiner asserts that Razavi discloses a service element that is the central component of the in-car sub-network that handles the processing and programming functions of the other components on the network, specifically:

> Referring to FIG. 2, a more detailed block diagram of in-car sub-network 20 is shown. FIG. 2 illustrates some of the components that may be coupled to the network. In-car sub-network is built around an on-board compute platform 22. Compute platform 22 consists of a SparcStation UPN server (a prototype Sparc 5-based system.) All of the components of the in-car sub-network are either directly plugged into the compute platform or coupled to do it via an ethernet connection. (column 6, lines 9-17)

> Compute platform 22 runs Java virtual machine 44. Java virtual machine 44 is a software application that executes in the environment of the native operating system and provides a common environment for applications written in the Java programming language. In other words, Java virtual machine 44 provides a layer of abstraction between an operating system and an executable program, essentially providing a Java-to-operating system interface so that programs written in the Java programming language can be executed on a platform running an operating system which would not otherwise support execution of the program. Because Java virtual machines exist for many different compute platforms, the same Java language program can be executed on each of these different platforms. In this manner, the hardware/operating system portion of the system is made a commodity. As a result, the remainder of the system is no longer tied to the original hardware, the original operating system, or the original supplier thereof (column 8, lines 50-67).

The Examiner also asserts that Razavi discloses that when maintenance is being performed, the service element is used to perform such maintenance by receiving

maintenance information from the communication devices that is then transmitted through the service element for updating the destination component, specifically:

> As indicated above, the configuration of the vehicle components as network devices on an in-car sub-network simplifies installation and removal of the devices, hence re-configuration of the vehicle. This system thereby makes it possible to remove outdated components and replace them with new components, even though the new components may have different features or require different data or other signals from the vehicle or its components. Similarly, components which execute associated software, display data or provide services can be upgraded by downloading new software, data or services ("upgrade data") to the components through the in-car sub-network. This software may be quickly and easily retrieved from sources external to the in-car sub-network, such as web pages or LANs which can be accessed through the communication devices on the in-car sub-network. The software can be retrieved by one device (e.g., a wireless modem,) conveyed through the network and installed in a second device (e.g., a GPS locator) as easily as downloading a web page. The system thereby provides a great deal of flexibility in the hardware and software configurations of the vehicle. In contrast, prior art systems for providing in-car services are tightly coupled to the car manufacturer's choice of hardware and operating system. Changes to the hardware require substantial time, labor and expense. Changes to the software require the original software supplier to provide modified code. The use of Personal Java in the in-car sub-network provides platform independence and also eliminates a substantial portion of the labor, time and costs involved in replacing and upgrading the vehicle's components and functionality. (column 13, line 46 to column 14, line 8).

> In another scenario, a service station may have a wireless LAN so that a vehicle equipped with a network and wireless communication device can establish a connection with the LAN as the vehicle pulls into the station. Once the connection is established, the in-car sub-network and LAN can function as a single network. The service station may be configured to request the service records of the vehicle so that any necessary service may be performed. If a software maintenance update is required by one of the components in the vehicle, a server on the LAN may automatically download this information to the appropriate component. Alternately, the user of the vehicle may request information or services. For example, the user may request that music (e.g., in MP3 format) or videos (e.g., in MPEG-2 format) be downloaded for the passengers' entertainment. The user may also have information he or she wishes to have printed, in which case the information could be transmitted to a

printer on the service station's LAN, where it could be picked up by the user. (column 15, lines 3-21)

Applicant argues:

> Additionally, claims 11 and 19 recite that the service element performs the operation of "allowing a remote diagnosis of the other components of the distributed system to be carried out, wherein the remote diagnosis includes **testing** at least one of **the other components**." With respect to this feature, the Examiner apparently relies on col. 15, lines 3-10 of Razavi. As explained in Applicants' Response filed January 11, 2008, this section of Razavi describes that a service station may request service records of the vehicle so that any necessary service may be performed. This section does not describe any remote diagnosis that includes testing of other components.

The Examiner asserts that, as noted above, the limitation of "allowing a remote diagnosis of the other components of the distributed system to be carried out, wherein the remote diagnosis includes testing at least one of the other components" is rejected as lacking enablement due to the specification not clearly supporting and/or distinguishing each of "performing an error diagnosis", "allowing remote diagnosis" and "testing at least one of the other components".

The Examiner does assert, however, that the previous Office Action explicitly set forth that while the invention of Razavi does teach uploading new software and performing maintenance and updates of existing software of the other components when necessary, Razavi does not explicitly describe the manner in performing maintenance, specifically by performing an error diagnosis to check the software in accordance with a predetermined value.

De Bellefeuille then teaches a computerized automotive service system comprising means for maintaining installed software, as part of an installation/uninstallation feature (column 10, lines 11-13), including an arrangement for performing integrity testing and error diagnosis of software by checking the software in accordance with a predetermined value in order to carry out the corrective maintenance (column 11, lines 12-25).

Applicant argues:

The Office Action asserts that Gray discloses a service element that maintains other components and that Buckley discloses the precise error diagnosis of claims 11 and 19. However, nowhere does Gray disclose a service element that maintains other components as provided for in the present claims. For example, the Office Action refers to col. 4, line 65 to col. 5, line 8 as assertedly disclosing a service element that performs upgrading and maintenance of other components on a distributed system to which the service element belongs. The cited section merely indicates that a URL may be stored and may be used for accessing a manufacturer's interface, but does not describe the initiation of such access and does not indicate any component that performs maintenance, e.g., using the URL. The Office Action is apparently reading into Gray more than that which is actually stated, apparently relying on improper hindsight based on Applicants' disclosure to interpret the cited sections of Gray as disclosing the features of claims 11 and 19.

As for the error diagnosis for which the Office Action relies on Buckley, the Examiner apparently relies on Buckley at col. 8, lines 46-63, and, for the correcting of the software, apparently relies on Buckley at col. 9, lines 38-55 and col. 10, lines 27-33. Respectfully, in these sections of Buckley, software on other components is not being diagnosed for errors, and software on other components is not being corrected. These sections of Buckley appear to describe that CIPN microprocessor checks firmware that runs on itself. (Buckley at col. 9, lines 29-30.) The CIPN microprocessor also checks firmware updates that are (1) not yet running on any component, and (2) upon future execution, will only run on the CIPN microprocessor (i.e., itself). (Buckley at col. 9, lines 33-36.) At no point does Buckley disclose "performing an error diagnosis of software running on the other components." The Examiner admits as much, arguing instead that Buckley discloses "performing an error diagnosis of software **running** on" and Gray discloses "the **other** components." However, as noted

above, the cited sections of Gray do not disclose a service element that performs maintenance of any kind of other components of a distributed system to which the service element belongs.

The Examiner disagrees with Applicant's argument that "nowhere does Gray disclose a service element that maintains other components", and instead the Examiner asserts that Gray explicitly discloses upgrading/maintaining the interfaces of the other components by receiving software upgrades/updates via a port of the vehicle control center and, as such, the vehicle control center (i.e. service element) in Gray performs the operation of maintaining the other components, specifically:

As an alternative to storing a control bean 750 and a GUI bean 760 or other beans associated with the standard device interface 740, the memory device or ROM may store a network address such as a uniform resource locator (URL) from which the appropriate manufacturer's interface may be downloaded. This permits the manufacturer to update a user interface on a dynamic basis and ensure that the most recent version of the manufacturer device interface is downloaded when a device is installed. This also reduces the ROM space required for storing the manufacturer's interface information and reduces the cost of the attached end device.

One should note that there are a number of ways in which the standard device interfaces or custom interfaces can be installed in the vehicle control center. They can be pre-installed in the vehicle control center when it is installed in the vehicle. Additionally, they can be requested and downloaded from the attached devices as described more hereinafter. They can be loaded from a diskette, CDROM, EPROM or other memory medium into the vehicle control center. They can be received over a network link from a URL address which address is either downloaded from the attached device or entered manually, and they can be input over an I/O link, such as an infrared port to the vehicle control center. (column 4, line 65 to column 5, line 21)

Applicant argues:

Each of claims 11 and 19 also recites, inter alia, the following:

> allowing a remote diagnosis of the other components of the distributed system to be carried out, **wherein the remote diagnosis includes testing** at least one of **the other components**;
>
> As regards this feature, neither Gray nor Buckley disclose "the remote diagnosis includes testing at least one of the other components." Instead, the Examiner relies on Chou at col. 3, lines 15-31 and col. 5, lines 34-35. However, the remote service center 200 (including diagnostic server 201) is thoroughly discussed at Chou col. 5, line 33 to col. 6, line 47, and does not mention "wherein the remote diagnosis includes testing at least one of the other components." "Diagnostic server 201 [may have] access to data related to the vehicle such as as-built, history, diagnostics, warranty, service information and failure mode data." (Chou, col. 5, lines 35-37.) The section goes on to further describe data collection and modeling, but nowhere does Chou disclose a "remote diagnosis include[ing] **testing** at least one of the **other** components."

The Examiner asserts that, as noted above, the limitation of “allowing a remote diagnosis of the other components of the distributed system to be carried out, wherein the remote diagnosis includes testing at least one of the other components” is rejected as lacking enablement due to the specification not clearly supporting and/or distinguishing each of "performing an error diagnosis", "allowing remote diagnosis" and "testing at least one of the other components".

The Examiner also asserts that, as noted above, while the invention of Gray and Buckley does teach including a communication element for loading new software interfaces for the plurality of components, the combination does not specify that the communication element includes a transceiver station communicating over a radio channel or including an arrangement for allowing a remote diagnosis of the plurality of components of the distributed system and a communications element for, in the case of a serious functional error, contacting a service provider.

The Examiner than maintains that Chou does teach an arrangement for allowing a remote testing and diagnosis of the system, specifically:

> The processor is integrated with a network interface 320 to provide communication capability with the remote service center 200. Preferably, the network interface comprises a removable wireless telephone such as the Motorola i1000+ and a docking facility for the wireless phone integrated with the client computer device. Both voice and data connections can be supported by interfacing the processor 300 and the wireless phone. The telephone integration provides basic communication functions. It establishes a data (e.g. TCP/IP) connection with a remote service center (e.g., remote service center 200). Wireless technologies such as GSM (Global System for Mobile Communications), CDMA (Code Division Multiple Access), TDMA (Time Division Multiple Access), iDEN.TM. (a TDMA-based Motorola technology), and AMPS (Advanced Mobile Phone System) can all be supported. The phone may also be used for wireless voice communications. (column 3, lines 15-13)
>
> The in-vehicle system establishes a data connection, using a cellular phone 102, with a diagnostic server 201 at the service center 200, collects diagnostic data using the diagnostic data service 120A, and uploads a snapshot of the vehicle data (e.g. VIN, test data with time-stamp) to the diagnostic server 201. The in-vehicle system may need to interact with the server 201 throughout a diagnosis or health checkup session, collecting and providing additional vehicle information as requested by the server 201. The result from the server 201 indicates either that the vehicle is in good health with no urgent action required, or that one or more problems requiring immediate attention are detected.
>
> When the vehicle is deemed to be in good health, a report enumerating the items checked and the conditions of those items is provided to the client computer device and reported to the driver or user using TTS and the display. (column 5, lines 1-15)

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure:

U.S. Patent No. 5,867,587 to Aboutalib et al. teaches an impaired operator detecting and warning system employing eyeblink analysis comprising means for

detecting an emergency situation (column 4, lines 33-42) and if the emergency situation is detected, acquiring a video image of a passenger (column 1, lines and column 3, lines 57-64), comparing the acquired video image with a recorded image (column 1, lines 55-66), and determining if an emergency function should be performed based on the comparison (column 2, lines 9-17 and column 4, line 66 to column 5, line 18).

U.S. Patent No. 6,060,989 to Gehlot teaches a system and method for preventing automobile accidents comprising a plurality of sensors connected to a vehicle architecture (column 3, lines 16-26) wherein the system performs detecting an emergency situation (column 4, lines 56-60) and in the emergency situation, acquiring an audio sample of a passenger (column 3, lines 27-63 and Table 1), analyzing the acquired audio sample and (column 4, line 60 to column 5, line 5 and Table 1), and determining if an emergency function should be performed based on the analysis (column 5, lines 6-20)

U.S. Patent No. 6,313,749 to Horne et al. teaches sleepness detection for vehicle driver or machine operator.

U.S. Patent No. 6,243,015 to Yeo teaches driver's drowsiness detection method of drowsy driving warning system.

U.S. Patent No. 6,028,514 to Lemelson et al. teaches a personal emergency, safety warning system and method.

U.S. Patent No. 6,526,460 to Dauner et al. teaches a vehicle communications system.

FOLDOC Free On-Line Dictionary of Computing, "cyclic redundancy check", teaches the definition of a "cyclic redundancy check" as a method wherein a number is "derived from, and stored or transmitted with, a block of data in order to detect corruption. By recalculating the CRC and comparing it to the value originally transmitted."

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY R. WEST whose telephone number is

(571)272-2226. The examiner can normally be reached on Monday through Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eliseo Ramos-Feliciano can be reached on (571)272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrey R. West/
Primary Examiner, Art Unit 2857

October 28, 2008